PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Our Case No. 03-214-A)

In re Application of:	)	
	)	
Bao, et al.	)	Examiner: TBA
	)	
Serial No. 10/789,831	)	
	)	Group Art Unit: TBA
Filed: February 27, 2004	)	
	)	
For: Label-Free Gene Expression Profiling With Universal Nanoparticle Probes in Microarray Assay Format	)	Confirmation No.: TBA

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

FOURTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

In order to comply with discretionary regulations 37 CFR §§1.97 and 1.98, attached hereto is Form PTO-1449, copies[1] of the documents listed thereon. These documents contain information which the Examiner may consider to be important in deciding whether to allow the present application to issue as a patent.

1. Ullman et al., U.S. Patent No. 4,193,983 issued 03/18/80
2. Zuk et al., U.S. Patent No. 4,256,834 issued 03/17/81
3. Ullman et al., U.S. Patent No. 4,261,968 issued 04/14/81
4. Leuvering, U.S. Patent No. 4,313,734 issued 02/02/82

[1]To the extent that a document is listed and no copy of same is attached, then such document is not at the present time available to the undersigned or is available in the file of a parent application. If a listed document is not in the English language and an English translation is readily available, such translation is also attached; if translation is not attached it is not readily available to the undersigned. If a foreign language patent document is cited, and an English language equivalent is known to the undersigned, then such equivalent patent is also cited on the attached form along with the corresponding foreign language patent and a connecting arrow indicated therebetween; if no such English language equivalent is cited, then none is known to undersigned.

5. Litman et al., U.S. Patent No. 4,318,707 issued 03/09/82

6. Liu et al., U.S. Patent No. 4,650,770 issued 03/17/87

7. Ullman, U.S. Patent No. 4,713,348 issued 12/15/87

8. Olsen et al., U.S. Patent No. 4,853,335 issued 08/01/89

9. Kura et al., U.S. Patent No. 4,868,104 issued 09/19/89

10. Henkens et al., U.S. Patent No. 5,225,064 issued 07/06/93

11. Shigekawa et al., U.S. Patent No. 5,294,369 issued 03/15/94

12. Shigekawa et al., U.S. Patent No. 5,384,073 issued 01/24/95

13. Kidwell et al., U.S. Patent No. 5,384,265 issued 01/24/95

14. Kossovsky et al., U.S. Patent No. 5,460,831 issued 10/24/95

15. Beebe et al., U.S. Patent No. 5,472,881 issued 12/05/95

16. Brooks, Jr. et al., U.S. Patent No. 5,514,602 issued 05/07/96

17. Hainfeld et al., U.S. Patent No. 5,521,289 issued 05/28/96

18. Gref et al., U.S. Patent No. 5,543,158 issued 08/06/96

19. Brooks, Jr. et al., U.S. Patent No. 5,571,726 issued 11/05/96

20. Kaushch et al., U.S. Patent No. 5,665,582 issued 09/09/97

21. Letsinger et al., U.S. Patent No. 5,681,943 issued 10/28/97

22. International Patent No. WO 89/06801 published 07/27/89

23. International Patent No. WO 97/40181 published 10/30/97

24. International Patent No. WO 98/04740 published 02/05/98

25. International Patent No. WO 99/23258 published 05/14/99

26. European Patent 0 630 974 A2 published 06/21/94

27. European Patent 0 667 398 A2 published 08/16/95

28. Alivisatos et al., "Organization of 'nanocrystal molecules' using DNA," *Nature*, Vol. 382, pp. 609-611 (1996)

29. Bain, et al., "Modeling Organic Surfaces with Self-Assembled Monolayers," *Angew. Chem. Int. Ed. Engl.*, Vol. 28, pp. 506-512 (1989)

30. Bradley, "The Chemistry of Transition Metal Colloids," *Clusters and Colloids: From Theory to Applications*, G. Schmid, Editor, BCH, Weinheim, New York, pp. 459-542 (1994)

31. Brust et al., "Novel Gold-Dithiol Nano-Networks with Non-Metallic Electronic Properties," *Adv. Mater.*, Vol. 7, pp. 795-797 (1995)

32. Chen et al., "A Specific Quadrilateral Synthesized from DNA Branched Junctions," *J. Am. Chem. Soc.*, Vol. 111, pp. 6402-6407 (1989)

33. Chen & Seeman, "Synthesis from DNA of a molecule with the connectivity of a cube," *Nature*, Vol. 350, pp. 631-633 (1991)

34. Chen et al., "Crystal Structure of a Four-Stranded Intercalated DNA: $d(C_4)^{\ddagger}$ *Biochem.*, Vol. 33, pp. 13540-13546 (1994)

35. Dagani, "Supramolecular Assemblies DNA to organize gold nanoparticles," *Chemical & Engineering News*, p. 6-7, August 19, 1996

36. Dubois & Nuzzo, "Synthesis, Structure, and Properties of Model Organic Surfaces," *Annu. Rev. Phys. Chem.*, Vol. 43, pp. 437-464 (1992)

37. Elghanian et al., "Selective Colorimetric Detection of Polynucleotides Based on the Distance-Dependent Optical Properties of Gold Nanoparticles," *Science*, Vol. 277, pp. 1078-1081 (1997)

38. Grabar et al., "Preparation and Characterization of Au Colloid Monolayers," *Anal. Chem.* Vol. 67, pp. 735-743 (1995)

39. Hacia et al., "Detection of heterozygous mutations in BRCA1 using high density oligonucleotide arrays and two-colour fluorescence analysis," *Nature Genet.*, Vol. 14, pp. 441-447 (1996)

40. Jacoby, "Nanoparticles change color on binding to nucleotide target," *Chemical &Engineering News*, p. 10, August 25, 1997

41. Letsinger et al., "Use of Hydrophobic Substituents in Controlling Self-Assembly of Oligonucleotides, *J. Am. Chem. Soc.*, Vol. 115, pp. 7535-7536 (1993)

42. Letsinger et al., "Control of Excimer Emission and Photochemistry of Stilbene Units by Oligonucleotide Hybridization," *J. Am. Chem. Soc.*, Vol. 116, pp. 811-812 (1994)

43. Marsh et al., "A new DNA nanostructure, the G-wire, imaged by scanning probe microscopy," *Nucleic Acids Res.*, Vol. 23, pp. 696-700 (1995)

44. Mirkin, "H-DNA and Related Structures," *Annu. Review Biophys. Biomol. Struct.*, Vol. 23, pp. 541-576 (1994)

45. Mirkin et al., "A DNA-based method for rationally assembling nanoparticles into macroscopic materials," *Nature*, Vol. 382, pp. 607-609 (1996)

46. Mirkin et al., "DNA-Induced Assembly of Gold Nanoparticles: A Method for Rationally Organizing Colloidal Particles into Ordered Macroscopic Materials," *Abstract* 249, Abstracts of Papers Part 1, 212 ACS National Meeting 0-8412-3402-7, American Chemical Society, Orlando, FL, August 25-29, 1996

47. Mucic et al., "Synthesis and characterizations of DNA with ferrocenyl groups attached to their 5'-termini: electrochemical characterization of a redox-active nucleotide monolayer," *Chem. Commun.*, pp. 555-557 (1996)

48. Mulvaney, "Surface Plasmon Spectroscopy of Nanosized Metal Particles," *Langmuir*, Vol. 12, pp. 788-800 (1996)

49. Rabke-Clemmer et al., "Analysis of Functionalized DNA Adsorption on Au(111) Using Electron Spectroscopy," *Langmuir*, Vol. 10, pp. 1796-1800 (1994)

50. Roubi, "MOLECULAR MACHINES – Nanodevice with rotating arms assembled from synthetic DNA," *Chemical & Engineering News*, p. 13, (Jan. 1999)

51. Seeman et al., "Synthetic DNA knots and catenanes," *New J. Chem.*, Vol. 17, pp. 739-755 (1993)

52. Shaw & Wang, "Knotting of a DNA Chain During Ring Closure," *Science*, Vol. 260, pp. 533-536 (1993)

53. Shekhtman et al., "Sterostructure of replicative DNA catenanes from eukaryotic cells," *New J. Chem.* Vol. 17, pp. 757-763 (1993)

54. Smith and Feigon, "Quadruplex structure of Oxytricha telomeric DNA oligonucleotides," *Nature*, Vol. 356, pp. 164-168 (1992)

55. Thein et al., "The use of synthetic oligonucleotides as specific hybridization probes in the diagnosis of genetic disorders," 2nd Ed., K.E. Davies, Ed., Oxford University Press, Oxford, New York, Tokyo, p. 21-33 (1993)

56. Wang et al., "Assembly and Characterization of Five-Arm and Six-Arm DNA Brached Junctions," *Biochem.*, Vol. 30, pp. 5667-5674 (1991)

57. Wang et al., "A DNA Aptamer Which Binds to and Inhibits Thrombin Exhibits a New Structural Motif for DNA," *Biochem.*, Vol. 32, pp. 1899-1904 (1993)

58. Weisbecker et al., "Molecular Self-Assembly of Aliphatic Thiols on Gold Colloids," *Langmuir*, Vol. 12, pp. 3763-3772 (1996)

59. Wells, "Unusual DNA Structures," *J. Biol. Chem.*, Vol. 263, pp. 1095-1098 (1988)

60. Zhang et al., "Informational Liposomes: Complexes Derived from Cholesteryl-conjugated Oligonucleotides and Liposomes," *Tetrahedron Lett.*, Vol. 37, pp. 6243-6246 (1996)

In accordance with MPEP Sections 609 and 707.05(b), it is requested that each document cited (including any cited in applicant's specification which is not repeated on the attached Form PTO-1449) be given thorough consideration and that it be cited of record in the prosecution history of the present application by initialing on Form PTO-1449. Such initialing is requested even if the Examiner does not consider a cited document to be sufficiently pertinent to use in a rejection, or otherwise does not consider it to be prior art for any reason, or even if the Examiner does not believe that the

guidelines for citation have been fully complied with. This is requested so that each document becomes listed on the face of the patent issuing on the present application.

The present Disclosure Statement is being submitted in compliance with 37 CFR 1.56 insofar as an Examiner might consider any of the cited documents important in deciding whether to allow the application to issue as a patent, but the citation of each document is not to be construed as an admission that such document is necessarily relevant or prior art. No representation is intended that the cited documents represent the results of a complete search, and it is anticipated that the Examiner, in the normal course of examination, will make an independent search and will determine the best prior art consistent with 37 CFR 1.104(a) and 1.106(b) and, in the course of each search, will review for relevance every document cited on the attached form even if not initialed.

Early and favorable consideration is earnestly solicited.

Respectfully submitted,

Dated: 7/30/07

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Registration No. 35,285

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Form PTO-1449 U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 03-214-A	Serial No. 10/789,831
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Applicant: Bao, et al.	
	Filing Date: February 27, 2004	Group: TBA

U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date
	1.	4,193,983	3/18/80	Ullman et al.			
	2.	4,256,834	3/17/81	Zuk et al.			
	3.	4,261,968	4/14/81	Ullman et al.			
	4.	4,313,734	2/2/82	Leuvering			
	5.	4,318,707	3/9/82	Litman et al.			
	6.	4,650,770	3/17/87	Liu et al.			
	7.	4,713,348	12/15/87	Ullman			
	8.	4,853,335	8/1/89	Olsen et al.			
	9.	4,868,104	9/19/89	Kura et al.			
	10.	5,225,064	7/6/93	Henkens et al.			
	11.	5,294,369	3/15/94	Shigekawa et al.			
	12.	5,384,073	1/24/95	Shigekawa et al.			
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	16.	5,514,602	05/07/96	Brooks, Jr. et al.			
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	19.	5,571,726	11/05/96	Brooks, Jr. et al.			
	20.	5,665,582	9/9/97	Kaushch et al.			
	21.	5,681,943	10/28/97	Letsinger et al.			

OTHER DOCUMENTS - Including Author, Title, Date, Pertinent Pages, Etc.

Examiner	Date Considered

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with any communication.

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FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation Yes No
	22.	WO 89/06601	7/27/89	PCT			
	23.	WO 97/40181	10/30/97	PCT			
	24.	WO 98/04740	2/5/98	PCT			
	25.	WO 99/23256	10/30/98	PCT			
	26.	0 630 974 A2	06/21/94	EPO			
	27.	0 667 398 A2	8/16/95	EPO			

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For:	Label-Free Gene Expression Profiling With Universal Nanoparticle Probes in Microarray Assay Format	Confirmation No.: TBA

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

SIXTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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In order to comply with discretionary regulations 37 CFR §§1.97 and 1.98, attached hereto is Form PTO-1449, copies[1] of the documents listed thereon. These documents contain information which the Examiner may consider to be important in deciding whether to allow the present application to issue as a patent. Pursuant to 37 C.F.R. § 1.97(c) and 1.17(p), a fee is attached.

[1]To the extent that a document is listed and no copy of same is attached, then such document is not at the present time available to the undersigned or is available in the file of a parent application. If a listed document is not in the English language and an English translation is readily available, such translation is also attached; if translation is not attached it is not readily available to the undersigned. If a foreign language patent document is cited, and an English language equivalent is known to the undersigned, then such equivalent patent is also cited on the attached form along with the corresponding foreign language patent and a connecting arrow indicated therebetween; if no such English language equivalent is cited, then none is known to undersigned.

1. Merrill, et al., U.S. Patent No. 5,830,986, issued November 3, 1998.

2. Lough, et al., U.S. Patent No. 5,900,481, issued May 4, 1999.

3. Goldberg, et al., U.S. Patent No. 6,203,989, issued March 20, 2001

4. Bawendi, et al., U.S. Patent No. 6,251,303, issued June 26, 2001.

5. Abbott, et al., U.S. Patent No. 6,277,489, issued August 21, 2001.

6. Bawendi, et al., U.S. Patent No. 6,306,610, issued October 23, 3001

7. Mirkin, et al, U.S. Patent No. 6,361944, issued March 26, 2002.

8. Wagner, et al., U.S. Patent No. 6,365,418, issued April 02, 2002

9. Mirkin, et al., U.S. Patent No. 6,417,340, issued July 09, 2002

10. WO 93/25709 published 23 December 1993.

11. WO 98/04740 published 5 January 1998

12. WO 98/17317 published 30 April 1998

13. WO 99/60169 published 25 November 1999

14. WO 00/33079 published 8 June 2002

15. WO 01/00876 published 4 January 2001

16. WO 01/51665 published 19 July 2001

17. WO 01/73123 published 4 October 2001

18. WO 01/86301 published 15 November 2001

19. WO 02/04681 published 17 January 2002

20. WO 02/18643 published 7 March 2002

21. WO 02/36169 published 10 May 2002

22. WO 02/46483 published 13 June 2002

23. WO 02/46472 published 13 June 2002

24. Letsinger, R., et al., "Chemistry of Oligonucleotide-Gold Nanoparticle Conjugates," *Phosphorus, Sulfur and Silicon*, Volume 144, p. 359-362 (1999)

25. Letsinger, R., et al., "Use of a Steroid Cyclic Disulfide Anchor in Constructing Gold Nanoparticle—Oligonucleotide Conjugates," *Bioconjugate Chem*, p. 289-291 (2000)

26. Li Z., et al., "Multiple thiol-anchor capped DNA-gold nanoparticle conjugates," *Nucleic Acids Research*, Volume 30, p. 1558-1562 (2002)

27. Nuzzo R., et al., "Spontaneously Organized Molecular Assemblies. 3. Preparation and Properties of Solution Adsorbed Monolayers of Organic Disulfides on Gold Surfaces, " *J. Am Chem. Soc.*, Volume 109, p. 2358-2368 (1987)

28. Otsuka, H, et al., "Quantitative and Reversible Lectin-Induced Association of Gold Nonoparticles Modified with α-Lactosyl-ω-mercapto-poly(ethyleneglycol)," *J. Am Chem. Soc.*, Volume 123, p. 8226-8230 (2001).

29. Wuelfing, P, et al, "Nanometer Gold Clusters Protected by Surface-Bound Monolaters of Thiolated Poly(ethylene glycol) Polymer Electrolyte," *J. Am. Chem. Soc.*, Volume 120, p. 12696-12697 (1998)

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Early and favorable consideration is earnestly solicited.

Dated: 7/30/04

Respectfully submitted,

Emily Miao
Registration No. 35,285

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FORM PTO-1449 (Rev. 2-32)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 03-214-A	Serial No. 10/789,831
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	2.	5,900,481	05/04/99	Lough, et al.	536	55.3	11/06/96
	3.	6,203,989	03/20/01	Goldberg, et al	435	6	03/25/99
	4.	6,251,303	06/26/01	Bawendi, et al.	252	301.4R	09/18/98
	5.	6,277,489	08/21/01	Abbott, et al.	428	403	12/04/98
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		Document Number	Date	Country	Class	Subclass	Translation Yes	Translation No
	10.	WO 93/25709	23 December 1993	PCT				
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	12.	WO 98/17317	30 April 1998	PCT				
	13.	WO 99/60169	25 November 1999	PCT				
	14.	WO 00/33079	8 June 2002	PCT				
	15.	WO 01/00876	4 January 2001	PCT				

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FORM PTO-1449 (Rev. 2-32)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No.	Serial No.
		03-214-A	10/789,831
		Applicant: Bao, et al.	
		Filing Date: February 27, 2004	Group: TBA

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FOREIGN PATENT DOCUMENTS

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	16.	WO 01/51665	19 July 2001	PCT				
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FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation Yes	Translation No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc).

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Hon. Commissioner of Patents and Trademarks S/N—10/789,831 Atty EM

Re: Applicant - Bao, et al. Case No. 03-214-A

Label-Free Gene Expression Profiling With Universal Nanoparticle Probes in Microarray Assay Format

Mailed: May 30, 2004

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Respectfully,
McDonnell Boehnen Hulbert & Berghoff LLP
Attorney for Applicant

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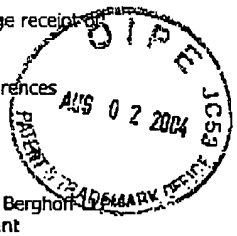

Respectfully,
McDonnell Boehnen Hulbert & Berghoff LLP
Attorney for Applicant